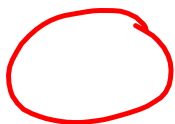

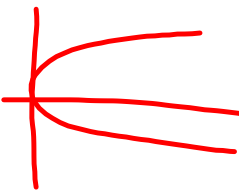




Warm Up - Functions!

Graph the following on desmos and discuss with a partner what makes a function?

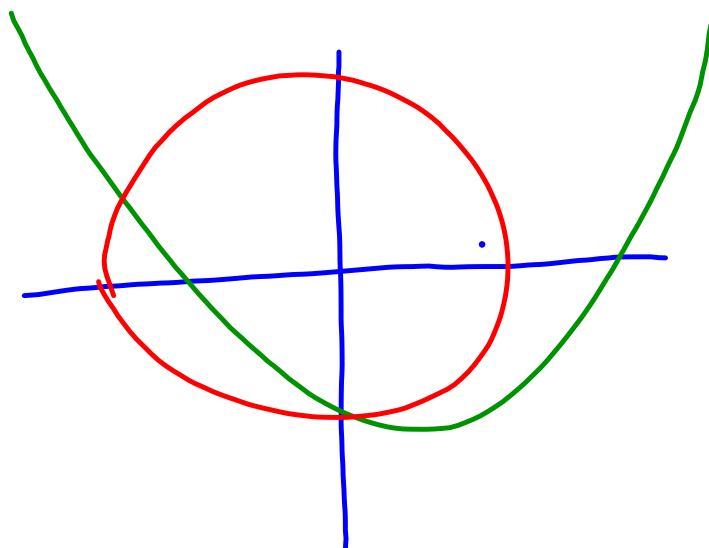
| Functions | Not Functions |
|---|---|
| $y=4x+8$ <i>line</i> | $x^2+y^2=9$  |
| $y=x^2-4$  | $y^2=x$  |
| $y=x^3+9$  | |
| $y=1/x$  | |

How do we know if something is a function?

For every input, there is only one output.
for every x , there is 1 y .

Vertical Line Test (VLT)

- if the relation touches a vertical line ONCE \rightarrow function
- if touches TWICE or more \rightarrow NOT a function



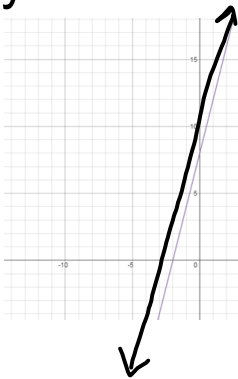
For a Function, we have to be able to state the
DOMAIN and RANGE

Domain - the set of values that x is "allowed" to be

Range - the set of values that y is "allowed" to be

Let's look back to a few examples

$$y=4x+8$$



what is x allowed to be?

Anything!

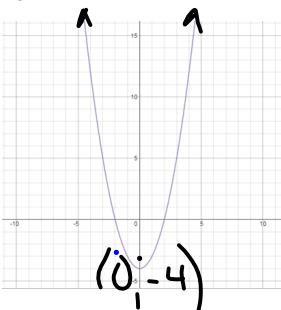
$$D: \{x | x \in \mathbb{R}\}$$

Domain:

what is y allowed to be? $\{x \text{ such that } x \text{ is an element of the real numbers}\}$

$$R: \{y | y \in \mathbb{R}\}$$

$$y=x^2-4$$



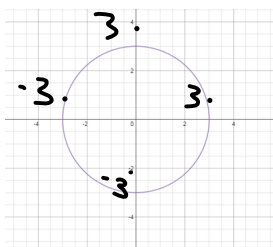
what is x allowed to be? Anything!

$$D: \{x | x \in \mathbb{R}\}$$

what is y allowed to be? bigger or equal to -4

$$R: \{y | y \geq -4, y \in \mathbb{R}\}$$

$$x^2+y^2=9$$



Domain

what is x allowed to be?

-3 to 3

$$D: \{x | -3 \leq x \leq 3, x \in \mathbb{R}\}$$

Range

$$R: \{y | -3 \leq y \leq 3, y \in \mathbb{R}\}$$

Homework - Domain and Range Worksheet

Function Notation!!!!

$$y=4x+8$$

What letter is the equation made up of?

How would we make a table of values?

SUMMARY

Equation Notation

Function Notation

Coordinates
